Method and Apparatus for an Incomplet Information Model of Credit Risk

ABSTRACT

A method and apparatus for developing a structural model of credit risk that incorporates the short-term uncertainty inherent in default events is disclosed. The model is based on the assumption of incomplete information, taking as premise that bond investors are not certain about the true level of a firm's value that may trigger default. In addition, the coherent integration of structure and uncertainty is facilitated with compensators. Compensators form the infrastructure of a class of credit models that is broad enough to include traditional structural models, intensity-based models, and a great deal more. Several empirical examples are provided that compare default probabilities and credit yield spreads forecast by the incomplete information model to the output of a Black and Cox (1976) model. It is found that the incomplete information model reacts more quickly and, unlike traditional structural models, forecasts positive short-term credit spreads for firms that are in distress. It is also demonstrated that while the model is predicated on the surprise nature of default, it does not have conditional default rate.